

Diabetes-friendly environments for children with diabetes

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The concept of diabetes-friendly environments is not a new one. While diabetes may be a “biological” disease, it certainly has psychosocial ramifications as well. All these domains of diabetes are sensitive to both the physical and psychosocial environment.^[1,2] Children with diabetes have special needs, which extend beyond those addressed in the clinic. The responsibility to meet these needs is a joint one, shared by policy-makers, civic bodies, schools and parents. The diabetes care professional is the key person, however, responsible for such an advocacy and its implementation.

The diabetes care professional understands the medical, psychological, and social challenges faced by the child with diabetes. The clinician should also realize the strengths and limitations of the child, as well as her or his family. At the same time, the care provider is best-placed to help resolve various modifiable issues, and optimize quality-of-life in children living with diabetes. Hence, it is our responsibility, as diabetes care professionals, to advocate for diabetes-friendly environments for all children living with the condition. While many publications discuss diabetes-friendly physical environments, and yet others call for child-friendly diabetes care facilities,^[3,4] this editorial provides a comprehensive overview of the “macro”-physical, “micro”-physical, chemical, biological, and psychosocial environmental factors which impact the life of children with diabetes [Table 1].

MACRO-PHYSICAL ENVIRONMENT

Our macro environment plays an important role in modulating our health.^[5] The quality of urban architecture, including

availability of facilities for walking, cycling, games and sports, influence the amount and quality of physical activity that a population indulges in. Provision of options which allow safe, enjoyable, and healthy exercises facilitate diabetes control. Children with diabetes need access to playgrounds, parks gymnasias, and sports stadia, in schools as well as outside of schools, to be able to exercise regularly. Such facilities may not be available for many children in developing nations.

MICRO-PHYSICAL ENVIRONMENT

Other less visible, but equally important “micro” issues may also impact diabetes care. Availability of refrigerators, and electricity to run them is limited in many parts of the world.^[6] Similarly, finding a place with controlled humidity, which allow storage of glucose monitoring or urine monitoring sticks, may pose a challenge to a child living in a one-room house, in which the kitchen is part of the bedroom.

Privacy for injecting insulin may be unavailable in schools and restaurants, and this may compromise insulin delivery. Availability of devices for disposal of sharps too is necessary for optimal needle/syringe disposal. Improvisation is often required to help ensure appropriate, safe, and feasible insulin storage, usage, and disposal of sharps.^[7]

CHEMICAL ENVIRONMENT

The concept of endocrine disruptor chemicals or metabolic disruptor chemicals has gained ground in recent decades. While no clear cut association has been documented, an increasing body of evidence does point to various links between the increasing prevalence of diabetes and exposure to chemicals.^[8]

Children with diabetes, therefore, have a right to “chemical-free” and pollution-free environments, with minimal exposure to plastics, pesticides, pollutants, and flame retardants.

Access this article online

Quick Response Code:



Website:
www.ijem.in

DOI:
10.4103/2230-8210.155324

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Table 1: Environmental factors which may impact diabetes

“Macro” physical environment
Urban architecture
Parks, playgrounds, sports facilities, pedestrian pathways
Sunlight exposure
“Micro” physical factors
Moderate temperature for insulin storage
Moderate humidity for glucose monitoring sticks storage
Space to inject in privacy
Food outlets
Sharps disposal devices
Chemical environment
Metabolic disruptor chemicals
Pesticides
Plasticizers
Food pollutants
Flame retardants
Biological environment
Diseases which predispose to diabetes
E.g. HIV, HBV, HCV
Diseases which occur more often in diabetes
E.g., air-, water-, food-borne infection
Psychosocial environment
Supportive family
Supportive community
Discrimination against people with diabetes
Social stigma
Culinary environment
“Culinary cruelty”
“Dietary draconism”

HIV: Human immunodeficiency virus, HBV: Hepatitis B virus, HCV: Hepatitis C virus

BIOLOGICAL ENVIRONMENT

The biological environment, too, affects health of children living with diabetes. Many of them have compromised immunity, which predisposes them to infections.^[9] While various air-, food-, and water-borne infections are always endemic in the environment, the recent surge in air-borne epidemics such as influenza, is a cause for concern. Children with diabetes should repeatedly be counseled to practice appropriate preventive hygienic measures.

From another perspective, a few infectious diseases, such as hepatitis B virus, hepatitis C virus, and human immunodeficiency virus, are associated with increased risk of dysglycemia. Children with such conditions should be regularly screened for diabetes,^[10] and counseled appropriately.

PSYCHOSOCIAL ENVIRONMENT

The role of the family and the community, in modulating diabetes care is well-documented.^[11-13] Psychosocial support plays an integral role in achieving optimal diabetes care. A diabetes-friendly psychosocial environment, in which

there is no social stigma attached to diabetes and in which neither ostracization nor pity finds place, is an absolute necessity. This can be created by having supportive family, schools, and communities and allow the child with diabetes to achieve her or his fullest potential.

One simple, but important, step in achieving this is to avoid “culinary cruelty,” in which children are repeatedly expected to abstain from them.^[14] Yet another phenomenon is “dietary draconism,” where children are forced to give up all foods, in the mistaken belief that a near-starvation diet is essential for glycemic control. In both cases, advocacy and awareness drives are required to educate the community about diabetes-friendly culinary environments. It is much better to learn how to handle ordinary food when having diabetes.

CHANGING DIABETES IN CHILDREN

The changing diabetes in children (CDiC) program aims to change diabetes in children, for the better. The vision includes not only micro-interventions, by providing insulin and glucose monitoring device, but also macro-intervention. Educational materials for parents, diabetes educators, and schools developed as part of CDiC ambit are examples of such activities. The Afro-Asian changing Diabetes in Children (AACDiC) Summit offers an opportunity to take this further. Advocacy for diabetes-friendly environments, in which children can live healthy, happy lives with diabetes, can be espoused through this platform. The multinational gathering at AACDiC facilitates sharing of best ideas and practices in this regard. It also encourages wider, louder, and better heard voices of advocacy, encouraging the creation of diabetes-friendly environments for our children.

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Cite this article as: Prasanna Kumar KM, Raghupathy P, Kalra S. Diabetes-friendly environments for children with diabetes. *Indian J Endocr Metab* 2015;19:1-3.

Source of Support: Nil, **Conflict of Interest:** None declared.